Reviewer's report

Title: HIV Prevention for South African Youth: Systematic Review of the Evidence for 'What Works'

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Reviewer: Audrey Pettifor

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Overall this is a well written review. The tables are very helpful and provide detailed and important information.

There are a few minor suggested edits and areas for clarification which could strengthen the paper.

From definition provided, unclear why excluded Soul City, loveLife and Life Skills evaluations? If didn’t meet other criteria (ie, no control, biological endpoint, etc.) ? The argument that these programs were not “directed programmes designed to determine strategies to effect behavioural change leading to a decrease in HIV incidence or related risk behaviours among South African youth” Didn’t seem correct as one could argue these programs did try to do this. The WHO adolescent review includes the loveLife evaluation under media campaigns….were media campaigns then not the focus?

In results I might start by stating how many interventions were reviewed- it seems from methods there were 8 but this is not explicitly stated anywhere. Also, seems odds to start results with a topic sentence “Stepping Stones…” . Seems might be better to state how many studies were in review. Then to say only 2 of 8 examined biological endpoints, Stepping Stones being the only one to see a significant impact on the endpoint (HSV-2).

Page 7, for differences mentioned in design, another major difference in these studies is those where the individual is the unit of analysis vs cluster trials (school or community is unit of analysis). Along these lines did all of the studies where the intervention was implemented at the school/community level use appropriate analytic techniques? (ie, did they analyze accounting for cluster correlation/cluster level)

Under invention components- would be useful to more clearly specify which programs provided skills in risk reduction as this is usually a key component found in other prevention reviews to be important to successful programs.

In Summary of findings, please be more clear by what is meant by “change reliance on teachers”, do you mean someone other than teachers should deliver interventions? If so, please clarify.

Discussion
It seems a key finding is that despite 8 interventions that are considered ‘rigorous’ and aim to reduce HIV in young people- only 2 tried to measure HIV and none of these found an impact on HIV. So we have indications of success from other potential proxies for HIV infection, which are known to have limitations. Need for more rigorous interventions that aim to measure impact on HIV.

Page 13, reference seems to be missing following sentence on promising community mobilization interventions

In recommendation that teachers aren’t perhaps effective implementers of projects and that ‘peers’ may not be either, perhaps authors can suggest who might be appropriate? Slightly older health educators (so not direct peers? Not school aged kids)...just wondering if some sense of who would be appropriate for this?

On a similar note, how should school level interventions then be changed? Should they be delivered in schools or is it better to work outside of schools.. any sense of how they should change?

One comment on the IMAGE study, while certainly an important study, only about a third? of total participants were under the age of 35 and the mean age of participants under 35 was 29 years, thus while the paper states the range for younger participants was 14-35 the majority were certainly older (likely over 18 or older). Another important note to make about IMAGE is that they did not power it to examine impacts in younger participants thus it was not designed to see an impact on HIV in young people.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests